

APPENDIX C3: BACKGROUND INFORMATION
DOCUMENT

AUGUST 2020

ENVIRONMENTAL IMPACT ASSESSMENT
AND
PUBLIC PARTICIPATION PROCESS

DEVELOPMENT OF THE
**450MW EMERGENCY RISK MITIGATION
POWER PLANT (RMPP), 132kV POWER LINE
AND ASSOCIATED INFRASTRUCTURE**

ON SITES LOCATED IN
ALTON, RICHARDS BAY,
KWAZULU-NATAL PROVINCE

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BACKGROUND INFORMATION DOCUMENT (BID)



Phinda Power Producers (Pty) Ltd proposes the development of a gas-to-power plant with a generating capacity of up to 450MW, 132kV power line and associated infrastructures (including LPG storage) on a site within Alton near Richards Bay. The project is to be known as the Emergency Risk Mitigation Power Plant (RMPP). The Project site is located approximately 8km south west of Richards Bay within the jurisdiction of the City of uMhlatuze Local Municipality and the King Cetshwayo District Municipality, KwaZulu-Natal Province.

The power plant and 132kV transmission infrastructure have been initiated by Phinda Power Producers (Pty) Ltd in response to the procurement process initiated by the Independent Power Producer Office (IPP Office) for the procurement of up to 2000MW of dispatchable generation capacity from a range of technologies. This allocation is in accordance with the new generation capacity required as specified in the Integrated Resource Plan 2019 and accompanying ministerial determination from the Minister for the Department of Mineral Resources and Energy (DMRE) to which the National Energy Regulator of South Africa (NERSA) has concurred.

WHAT DOES THIS DOCUMENT TELL YOU?

This document aims to provide Interested and/or Affected Parties (I&APs), with:

- » Information on the proposed 450MW Emergency Risk Mitigation Power Plant (RMPP), 132kV power line and associated infrastructure.
- » An overview of the Environmental Impact Assessment (EIA) process, Basic Assessment (BA) process and environmental studies being undertaken to assess the proposed 450MW RMPP and associated 132kV transmission infrastructure.
- » Details of how you can become involved in the EIA and BA processes, receive information, or raise issues, which may concern and/or interest you.

OVERVIEW OF THE PROPOSED PROJECT

The 450MW RMPP is proposed to be located on Remainder of Erf 1854 and Portion 2 of Erf 1854, an area of 49,42ha. The proposed LPG storage infrastructure is proposed to be located on Remainder of Erf 1795 and Portion 1 of Erf 1795, located directly across the road from the proposed power plant site. All of the affected properties of the 450MW RMPP and LPG site are privately owned by associated group companies of the project proponent.

The main infrastructure associated with the facility includes the following:

- » Main Power Island consisting of either gas turbines comprising of air intake, air filter structures and exhaust stack for the generation of electricity through the use of natural gas or LPG; or Gas engines comprising of reciprocating internal combustion engines and exhaust stack.
- » Generator and Auxiliary transformers.
- » Balance of Plant systems.
- » Dry Cooling systems.

- » Auxiliaries.
- » 132kV interconnecting substation and power line connecting to the grid transmission infrastructure.
- » LPG fuel pipe routing between the LPG storage site and the power plant site.
- » Stormwater management ponds.
- » LPG storage facility comprising of 10 tanks of 1 000m³ each (10 000m³ in total).
- » 3 effluent reticulation systems - i.e. 1) sanitary wastewater system; 2) oily water collection system and 3) storm water and rainwater collection system.

The power generated by the facility will connect via two underground 132kV cables to the Bayside Substation located approximately 2km south of the project site. The following properties have been considered for the 132kV power line route alternatives:

132kV Route Options	Associated Properties	
132 kV Route Option 1	Erf 1794	
	Erf 1804	
	Remainder of Erf 1796	
	Portion 1 of Erf 1796	
	Erf 16875	
	Remainder of Erf 5333	
	Portion 118 of Erf 5333	
	Portion 145 of Erf 5333	
	Portion 150 of Erf 5333	
	Remainder of Portion 8 of Erf 5333	
132kV Route Option 2	Erf 1794	
	Erf 15424	
	Erf 16875	
	Portion 118 of Erf 5333	
	Portion 145 of Erf 5333	
	Portion 150 of Erf 5333	
	Remainder of Portion 8 of Erf 5333	
	Remainder of Erf 5333	
	132kV Route Option 3	Erf 1794
		Erf 15424
Erf 16875		
Portion 118 of Erf 5333		
Portion 148 of Erf 5333		
Remainder of Portion 8 of Erf 5333		
Remainder of Erf 5333		



132kV Route Options	Associated Properties
132 kV Route Option 4	Erf 1794
	Erf 15424
	Erf 16875
	Portion 118 of Erf 5333
	Remainder of Portion 8 of Erf 5333
	Remainder of Erf 5333
Route Termination	Remainder of Erf 6363

GAS TO POWER GENERATION TECHNOLOGY

The integration of more and more intermittent renewable energy into the South African electricity grid creates the need for a dispatchable, very flexible and fast ramp up solution to ensure stable electricity supply in balancing out the variability in electricity production from renewable energy technology solutions (solar and wind). This can easily be achieved by gas-to-power plants, which is the default technology deployed internationally in meeting electricity demand variability in the grid. This technology is capable of commencing operation and reaching full load in a few minutes from being called upon to dispatch electricity, can operate at part load and can be turned off at short notice within minutes when no longer required. This rapid flexibility in operations makes the technology ideally suited to mitigating the variability in renewable energy generation and can provide dispatchable back up generation capacity in the event of unscheduled maintenance on Eskom's base load coal generation plants.

The 450MW RMPP is planned to operate on a mid-merit basis at an average annual dispatch rate of ~35% (i.e. operational between 5am and 9:30pm daily and being deployed on average for 50% over the year during this time period) and has been designed and developed as a power balance system to manage electricity demand during peak periods to stabilise the grid, as well as provide back up support for base load generation in the event of unscheduled maintenance on the coal fired power stations. The technology proposed is ideally placed for such an operational regime, and is able to operate using various fuel sources, depending on availability. The 450MW RMPP is proposed to operate using Liquefied Petroleum Gas (LPG) initially, with conversion to regassified imported Liquefied Natural Gas (LNG) once natural gas is available. Diesel fuel will only be used in the black start diesel generator. This diesel generator will be started first to provide start-up power to the first gas engine.

The RMPP will be operated as a simple cycle system, with no steam driven turbine component. Two technologies are being proposed – i.e. reciprocating gas engines and gas turbines.

Reciprocating gas engines are similar to automotive and marine engines used to propel vehicles. The fuel, however, is LPG or LNG. The fuel is kept under pressure according to the demand of the engine and it is supplied to the cylinder mixed with air necessary for combustion. The gas engines in a power plant configuration are used to turn a generator that

creates electricity. Through the use of a transformer, the electricity generated is shaped and sized to distribute into the electricity grid.

The principle of operation of a reciprocating gas engine during which chemical energy is converted into mechanical energy is illustrated in the figure below.

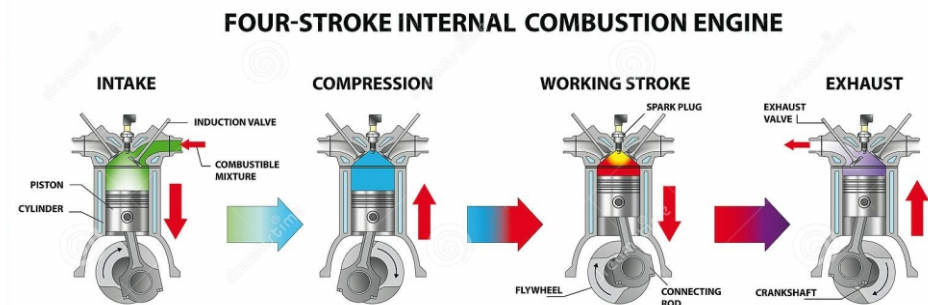


Figure 1: Illustration of the operation of reciprocating gas engine

The gas engine power plant proposed for the 450MW RMPP will be equipped with between 24 and 56 reciprocating internal combustion engines as the prime mover depending on the final choice of engine size.

Gas turbines used in electricity generation are typically small compact turbines, similar to the ones used in the aircraft industry. The gas turbine compresses air and mixes it with fuel which is combusted to produce high temperature combustion gases. The high temperature combustion gases pass through a gas turbine resulting in the rotation of the turbine blades. The rotational movement of the turbine blades at a high speed drives a generator which converts a portion of the energy produced by the rotational blades into electricity. The principles of operation of the gas turbine power plant is illustrated in the figure below. The blue shading indicates the cold air section and red section illustrates the exhaust path.

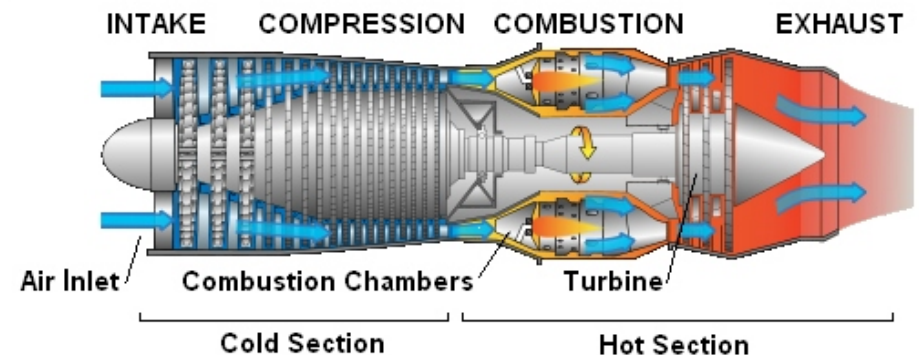
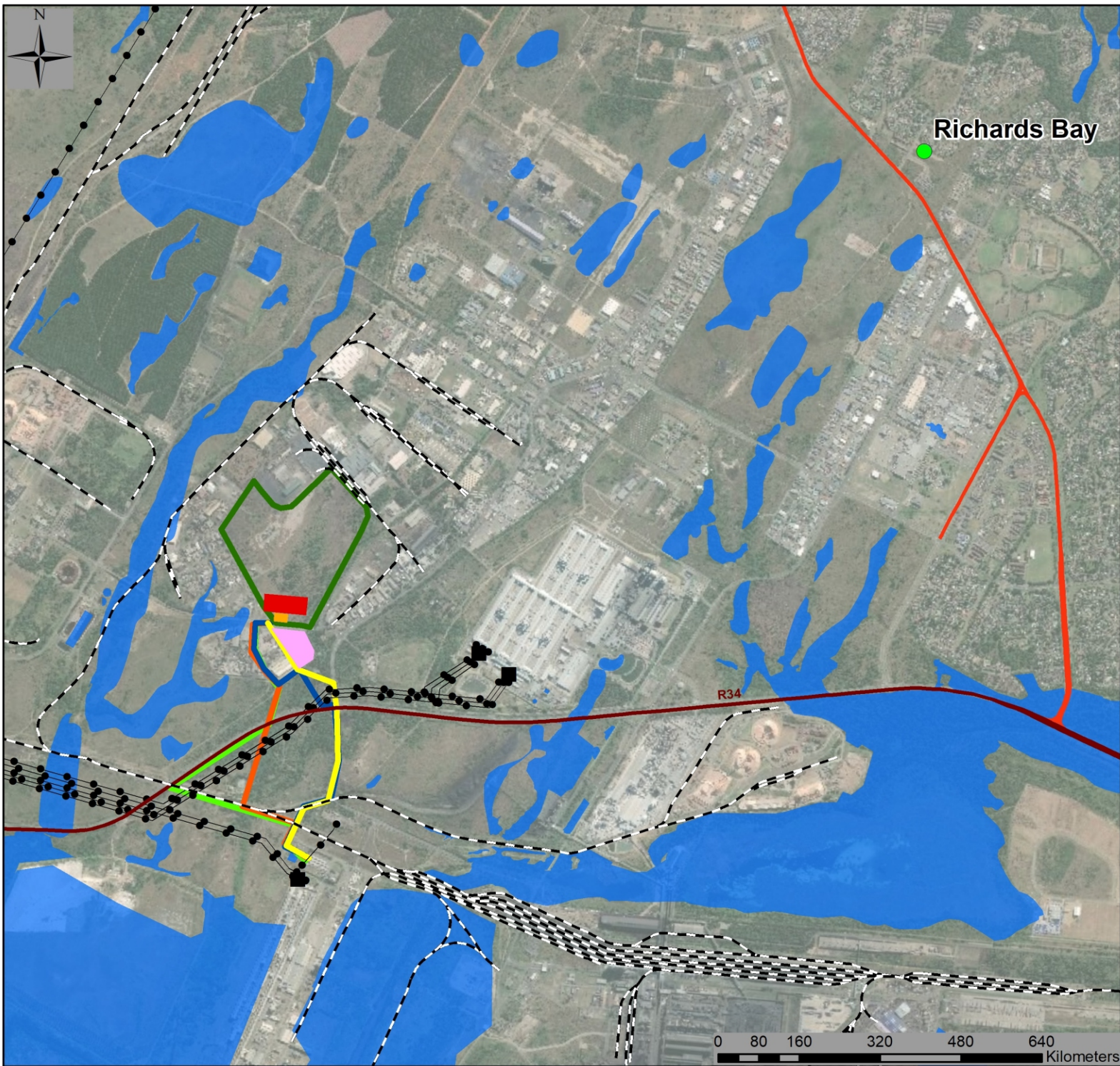


Figure 2: Typical configuration of the major components in the gas turbine engine



450MW Emergency Risk Mitigation Power Plant and Associated Infrastructure, KwaZulu-Natal Province

Locality Map

Legend

- Town
- Substation
- Railway Line
- Regional Road
- Main Road
- Existing Power Line
- Phinda 450MW Power Plant Site
- 132kV Transmission Powerline Option 1
- 132kV Transmission Powerline Option 2
- 132kV Transmission Powerline Option 3
- 132kV Transmission Powerline Option 4
- LPG Depot
- Emergency Power Block (450MW)
- 132 kV Substation
- NFEPA Wetlands

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Scale: 1:32 000
 Projection: GCS_WGS_1994
 Ref: 450MW Power Plant Locality Map



Figure 3: Overall layout of the 450MW RMPP and associated infrastructure with the 132kV transmission infrastructure route alternatives



The gas turbine power plant proposed for the 450MW RMPP will comprise of between 8 and 16 gas turbine sets depending on the final choice of turbine.

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The development of the 450MW RMPP, LPG storage infrastructure, 132kV transmission infrastructure and associated infrastructure requires Environmental Authorisation (EA) from the National Department of Environment, Forestry and Fisheries (DEFF), in consultation with the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (EDTEA) in accordance with the National Environmental Management Act (No. 107 of 1998) (NEMA), as read with the EIA Regulations, GNR 982-985 of 4 December 2014, as amended. An EIA process is an effective planning and decision-making tool. It allows the environmental consequences of a proposed development to be identified and appropriately managed. It also provides the opportunity for the developer to be forewarned of potential environmental issues, and facilitates dialogue with I&APs.

In order to obtain Environmental Authorisation, Phinda Power Producers (Pty) Ltd has initiated the EIA processes for the project, and has appointed Savannah Environmental, as the independent consultant to undertake the required comprehensive, independent environmental studies. Separate Environmental Authorisations (EAs) are required to be obtained for the RMPP (inclusive of the LPG storage infrastructure) and the 132kV transmission infrastructure. As such separate processes are being undertaken as follows:

- » A Scoping and EIA process for the 450MW RMPP, LPG storage infrastructure and associate infrastructure.
- » A Basic Assessment process for the 132kV transmission infrastructure.

These studies will aim during the course of the EIA process to identify and assess potential environmental impacts and propose appropriate mitigation measures to inform an EA and an Environmental Management Programme (EMPr). The public consultation processes for these projects will be undertaken concurrently and I&APs will be actively involved throughout the process.

POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED PROJECT

A high level evaluation of the project site and power line routes has been undertaken in order to identify specialist studies required to assess potential impacts associated with the project. Based on this study, as well as results from the DEFF online screening tool and an understanding of the project scope at this stage in the process, the following potential environmental impacts are expected to be associated with the project:

- » Impacts on ecology including flora, fauna, avifauna;
- » Impacts on wetlands;
- » Impacts on surface and groundwater resources;
- » Impacts on air quality;

- » Impacts on climate change;
- » Impacts on heritage resources (i.e. archaeology and palaeontology);
- » Impacts on the socio-economic environment;
- » Traffic impacts;
- » Impacts on soil and land capability;
- » Impacts on ambient noise levels; and
- » Visual impacts.

Specialist studies will be undertaken as part of the EIA processes to assess the above-mentioned impacts. These studies will identify and assess potentially significant impacts based on existing information, on-site field observations and investigations and input from the public participation process. Mitigation measures and recommendations to minimise potentially significant impacts will be identified and included in the site specific EMPr.

PUBLIC PARTICIPATION PROCESS

The sharing of information forms the basis of the public participation process and offers I&APs the opportunity to become actively involved in the respective EIA and BA processes. The public consultation processes for these projects will be undertaken concurrently.

The public participation process aims to ensure that:

- » Information containing all relevant facts in respect of the application is made available to I&APs for review.
- » I&AP participation is facilitated in such a manner that they are provided with reasonable opportunity to comment on the proposed project.
- » Adequate review periods are provided for I&APs to comment on the findings of the Scoping, EIA and BA processes respectively.

In order to ensure effective participation, the public participation process includes the following:

- » Identifying I&APs, including affected and adjacent landowners and occupiers of land, and relevant Organs of State.
- » Placing site notices at the affected properties.
- » Placing advertisements in local newspapers announcing the EIA processes and availability of various reports, and inviting comment.
- » Live read radio announcements announcing the EIA processes and availability of various reports, and inviting comment.
- » Compiling and maintaining a database of I&APs throughout the respective EIA and BA processes.
- » Notifying registered I&APs of the commencement of the EIA and BA processes, and distributing the Background Information Document (BID).
- » Notifying registered I&APs of relevant milestones throughout the EIA and BA processes.
- » Notifying registered I&APs of the release of the Scoping, EIA and Basic Assessment reports



for 30-day public review periods.

- » Holding consultation meetings with I&APs at various intervals throughout the process applicable to provide an opportunity for I&APs to engage with the EIA project team. Where face-to-face meetings cannot be held, meetings will be via an appropriate virtual platform.
- » Notifying registered I&APs of DEFF's final decision on whether to grant or refuse Environmental Authorisation (EA), and the manner in which such a decision may be appealed.

The restrictions enforced in terms of Government Gazette 43096 which placed the country in a national state of disaster limiting the movement of people to curb the spread of the COVID-19 virus has placed some limitations on the commencement and undertaking of the public consultation as part of an EIA process. Alternative means of undertaking consultation has been designed and will be implemented by Savannah Environmental to ensure that I&APs are afforded sufficient opportunity to raise comments on the project through an interactive web-based platform readily available and accessible to any person illustrating interest in the project and enables the public participation process to be undertaken in line with Regulations 41 to 44 of the EIA Regulations, 2014, as amended. Where access to this online platform is not possible by an I&AP, alternative arrangements for participation will be made.

Participation in the EIA processes is encouraged from I&APs during the respective BA and EIA processes in order to ensure that potential impacts are considered within the environmental studies.

YOUR RESPONSIBILITIES AS AN I&AP

In terms of the 2014 EIA Regulations, as amended, your attention is drawn to your responsibilities as an I&AP:

- » In order to participate in the EIA process you must register yourself on the project database.
- » You must ensure that any comments regarding the proposed project are submitted within the stipulated timeframes.
- » You are required to disclose any direct business, financial, personal or other interest you may have in the approval or refusal of the application for the proposed project.

HOW TO BECOME INVOLVED

1. By **responding** by phone, fax or e-mail to the invitation for your involvement.
2. By returning the **reply form** to the relevant contact person.
3. By attending **meetings** to be held during the course of the process.
4. By **contacting** the consultants with queries or comments.
5. By **reviewing and commenting** on the Scoping, EIA and Basic Assessment Reports within the stipulated 30-day review periods.

If you consider yourself an I&AP for this project, we urge you to make use of the opportunities created by the public participation process to provide comment, raise issues and concerns which affect and/or interest you, or request further information. Your input forms a key element of the EIA process.

By completing and submitting the accompanying reply form, you automatically register yourself as an I&AP for this project, and is ensured that your comments, concerns or queries raised regarding the project will be noted.

COMMENTS AND QUERIES

Direct all comments, queries, or responses to:

Nicolene Venter
Savannah Environmental (Pty) Ltd
PO Box 148, Sunninghill, Johannesburg, 2157
Tel: 011 656 3237
Fax: 086 684 0547
E-mail: nicolene@savannahsa.com

To visit the online stakeholder engagement platform and view project documentation, visit www.savannahSA.com



**ENVIRONMENTAL IMPACT ASSESSMENT, BASIC ASSESSMENT AND
PUBLIC PARTICIPATION PROCESSES**

**DEVELOPMENT OF THE 450MW EMERGENCY RISK MITIGATION POWER PLANT (RMPP) INCLUSIVE OF LIQUID
PETROLEUM GAS STORAGE FACILITIES AND ASSOCIATED INFRASTRUCTURE, AND 132kV TRANSMISSION LINES
ON SITES LOCATED IN ALTON, RICHARDS BAY, KWAZULU-NATAL PROVINCE**

September 2020

Return completed registration and comment form to: **Nicolene Venter** or **Ronald Baloyi** of **Savannah Environmental**

Phone: 011 656 3237 / **Mobile (incl. 'please call me')**: 060 978 8396 / **Fax:** 086 684 0547

E-mail: publicprocess@savannahsa.com **Postal Address:** PO Box 148, Sunninghill, 2157

Your registration as an interested and/or affected party will be applicable for this project only and your contact details provided are protected by the PoPI Act of 2013

Please provide your complete contact details:

Name & Surname:			
Organisation:			
Designation:			
Postal Address:			
Telephone:		Fax:	
Mobile:			
E-mail:			

Please indicate for which project you want to registered as and Interested and Affected Party (I&AP) (please indicate your preference by ✓the applicable box):

EIA for the 450MW Emergency Risk Mitigation Power Plant Project		Basic Assessment for the 132kV Power Line	
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In terms of EIA Regulations, 2014, as amended, Regulation 43(1), you are required to register as an I&AP to receive further correspondence regarding the Basic Assessment and/or Scoping and EIA process and to disclose any direct business, financial, personal or other interest which you may have in the approval or refusal of the application (add additional pages if necessary):

Please list your comments regarding the Basic Assessment and/or Scoping and EIA process (add additional pages if necessary):

Please provide contact details of any other persons who you regard as a potential interested or affected party:

Name & Surname:			
Postal Address:			
Telephone:			
Mobile:			
E-mail:			